REMARKS

Claims 80 through 83 and 92 through 96 are pending in this application. Claim 80 is amended herein. New claims 92 through 96 are added herein. Support for the amendments to the claims and the new claims may be found in the claims as filed originally, as well as the specification at page 29, lines 8 through 18. Reconsideration of this application in view of the foregoing amendments and the following remarks is respectfully requested.

Claim Rejections - 35 U.S.C. § 112:

Claims 80 through 83 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The rejection is traversed.

It is submitted that those skilled in the art would recognize from the description of the robotic system at page 29, lines 8 through 18 of the specification as originally filed the particular components that might comprise robot 100. 35 U.S.C. § 112, first paragraph requires only that a specification enable those *skilled in the art* to make and/or use the invention. There is no requirement 35 U.S.C. § 112 to draft a specification as a step-by-step tutorial for every inexperienced novice to practice an invention. Robots in general, and robotic systems in particular, were well known to those of skill in the art, such as engineers and technicians, at the time the specification was drafted. Indeed, the reference cited in the Office action mailed June 6, 2003, U.S. Patent No. 4,927,545 to Roginski, contains a description of a robot controlled by a computer at column 3, lines 30-38, and states specifically at column 3, line 36 the such robot arms are well known in the art.

Furthermore, we have identified several issued patents having claims reciting robots or robotic systems that were filed well before the subject application. Some of these patents are:

U.S. Patent No. 5,987,591 to Jyumonji, issued November 16, 1999 entitled "Multiple-sensor Robot System for Obtaining Two-dimensional Image and Three-dimensional Position Information."

U.S. Patent No. 5,986,423 to Matsumoto, et al. issued November 16, 1999 entitled "Industrial Robot."

U.S. Patent No. 5,994,864 to Inoue, et al. November 30, 1999 entitled "Robot

Controller."

U.S. Patent No. 5,991,951 to Kubo, et al. issued November 30, 1999 entitled "Running and Working Robot Not Susceptible to Damage at a Coupling Unit Between Running Unit and Working Unit."

U.S. Patent No. 5,990,585 to Lowrance issued November 23, 1999 entitled "Two-axis Magnetically Coupled Robot."

U.S. Patent No. 5,983,744 to Watanabe, et al. issued November 16, 1999 entitled "Robot Apparatus for Installing Both a Robot Movable Section and a Robot Controller."

U.S. Patent No. 5,959,423 to Nakanishi, et al. issued September 28, 1999 entitled "Mobile Work Robot System."

U.S. Patent No. 5,950,495 to Ogawa, et al. issued September 14, 1999 entitled "Two-armed Transfer Robot."

U.S. Patent No. 5,929,585 to Fujita issued July 27, 1999 entitled "Robot System and its Control Method."

U.S. Patent No. 5,934,141 to Costa issued August 10, 1999 entitled "Two-axis Cartesian Robot."

U.S. Patent No. 5,931,047 to Ellqvist, et al. August 3, 1999 entitled "Industrial Robot."

Also attached following page 5 are several references showing examples of robots and robotic systems readily available to those of skill in the art in 1999, as evidence of the familiarity of those of skill in the art with robots in general, and robotic systems in particular. Among the references are a history of robots, a description of a Universal Motion Controller from American Robot Corporation (ARC) that is an improvement on the Cincinnati Milacron T3-786, a description of a Merlin robot, also from ARC, a description of a gantry robot, also from ARC, a synopsis of robot development at Fanuc, Inc., and a synopsis of robot development at Brooks Automation.

It is submitted that including a description of components comprising a robot or the means by which robots are controlled is peripheral to the description of the invention, and would constitute needless extraneous details that were available already to those of skill in the art when the specification was drafted. New claims 92 through 96 are submitted to be supported by the specification for at least the reasons discussed above with respect to claims 80 through

83. Withdrawal of the rejection is earnestly solicited.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all claims 80 through 83 and 92 through 96 are allowable. Allowance of all claims 80 through 83 and 92 through 96 and of this entire application are therefore respectfully requested.

Respectfully submitted,

By [signature]

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Attachments

1978 Using technology from Vicarm, Unimation develops the PUMA (Programmable Universal Machine for Assembly). The PUMA can still be found in many research labs today.

1978 Brooks Automation founded

1979 Sankyo and IBM market the SCARA (selective compliant articulated robot arm) developed at Yamanashi University in Japan

1981 Cognex founded.

1981 CRS Robotics Corp. founded.

1982 Fanuc of Japan and General Motors form joint venture in GM Fanuc to market robots in North America.

1983 Adept Technology founded.

1984 Joseph Engelberger starts Transition Robotics, later renamed Helpmates, to develop service robots.

1986 With Unimation license terminated, Kawasaki develops and produces its own line of electric robots.

1988 Stäubli Group purchases Unimation from Westinghouse.

1989 Computer Motion founded.

1989 Barrett Technology founded

1993 Sensable Technologies founded.

1994 CMU Robotics Institute's Dante II, a six-legged walking robot, explores the Mt. Spurr volcano in Alaska to sample volcanic gases.

1995 Intuitive Surgical formed by Fred Moll, Rob Younge and John Freud to design and market surgical robotic systems. Founding technology based on the work at SRI, IBM and MIT.

1997 NASA's Mars PathFinder mission captures the eyes and imagination of the world as PathFinder lands on Mars and the Sojourner rover robot sends back images of its travels on the distant planet.

1997 Honda showcases the P3, the 8th prototype in a humanoid design project started in 1986.

2000 Honda showcases Asimo, the next generation of its series of humanoid robots.

2000 Sony unveils humanoid robots, dubbed Sony Dream Robots (SDR), at Robodex.

2001 Sony releases the second generation of its Aibo robot dog.

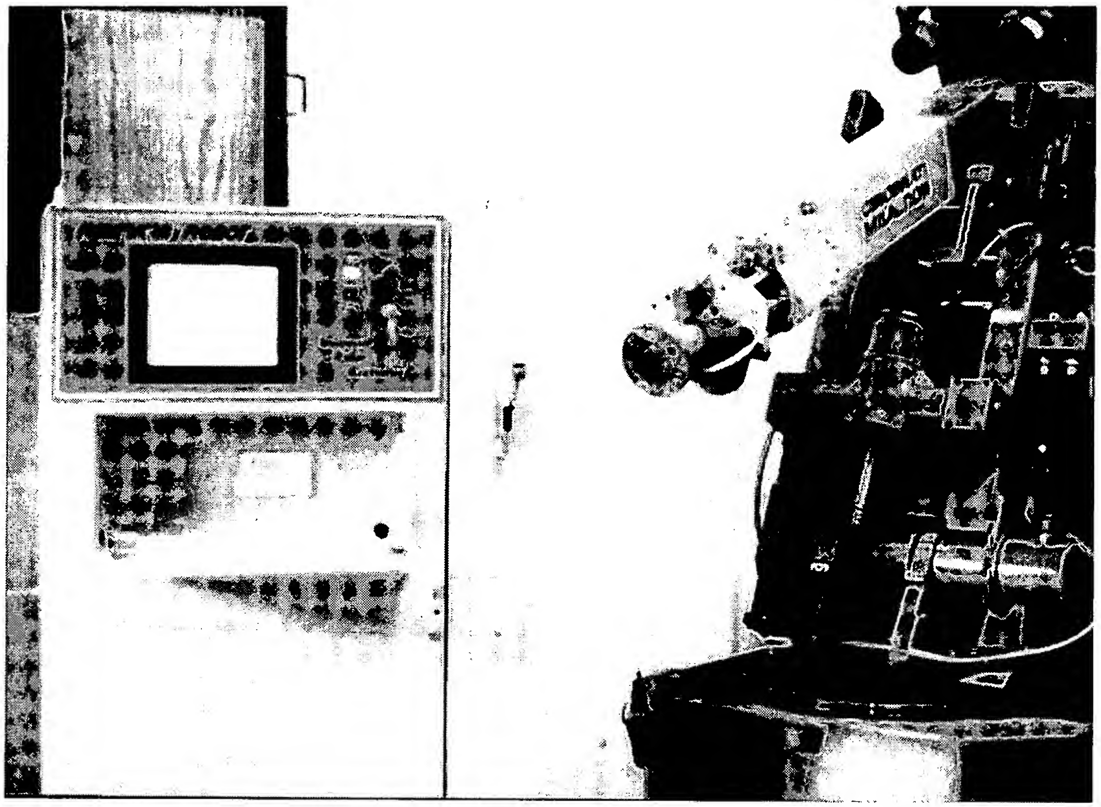
2001 Built by MD Robotics of Canada, the Space Station Remote Manipulator System (SSRMS) is successfully launched into orbit and begins operations to complete assembly of International Space Station

We are still building this historical timeline. Please contact us if you can add to it.

41095

Universal Motion Controller, UMC-2

By American Robot



The Cincinnati Milacron T3-786 robot was the workhorse of the robotics industry for many years. Almost indestructable, thousands of these machines are still in production in hostile, 24 hour manufacturing environments. Many manufacturers have come to depend on these machines, and are reluctant to give them up.

Now 776 and 786 owners can benefit from the features of the UMC. In addition to the UMC's advanced computer architecture, the UMC-2's high efficiency 100 Amp PWM servo drives far outperform the original equipment SCR style drives. With the UMC your motors will run faster, cooler, handle higher payloads better, and use less utility power!

The UMC... improving a classic design.

Back to American Robot Corporation Home

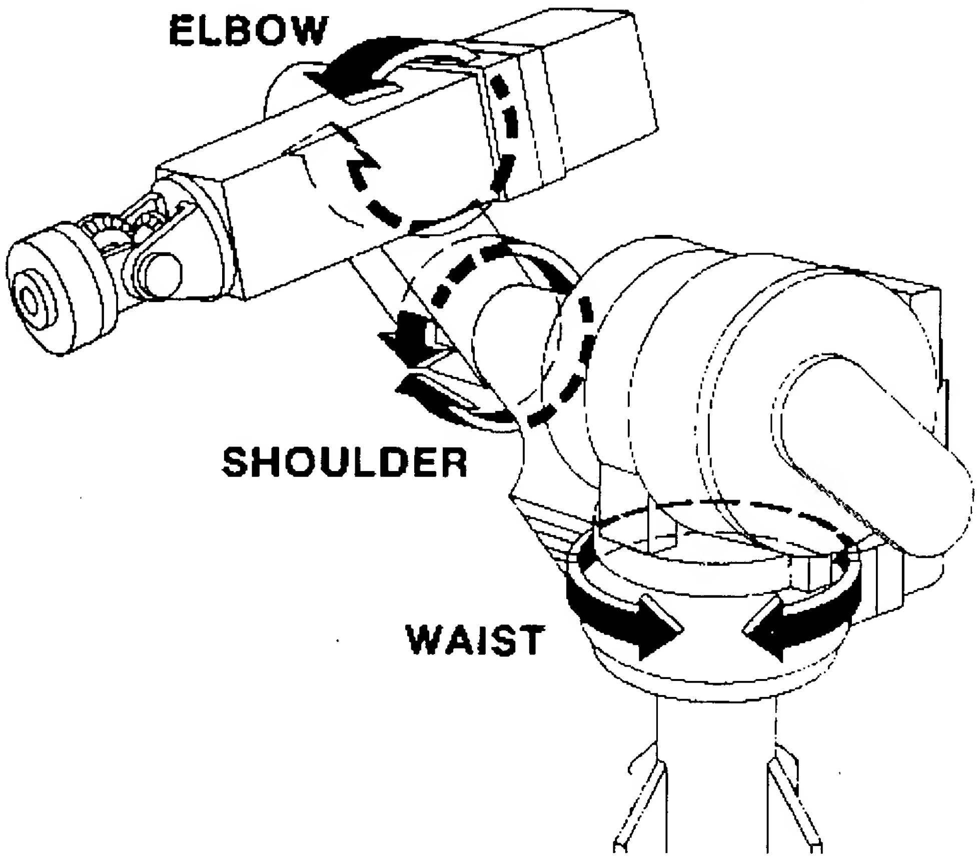
AMERICAN ROBOT

Merlin Robots

By American Robot

The Merlin robot is a rugged, reliable, six axis articulated robot built for applications ranging from automotive to electronics, to aerospace. Its unique work envelope and anthropomorphic design give workcell designers a wide range of options. There are three standard models:

- MR6200 - 20 pound payload, 40" reach
- MR6500 - 50 pound payload, 40" reach
- MR6200 - 20 pound payload, 60" reach



Pricing
starts around $48,000

The following diagrams are also available :

- Assembly Operation
- Waterjet Cutting Automotive Carpets
- Welding Application
- Elevation View of MR6500 work envelope
- Plan View of MR6500 work envelope
- View of Tool Mounting Flange
- Merlin's Three Axis Wrist

- View of MR6260

Want to contact us for more information about Merlin robots or other products?

 For information about Merlin robots or our other products, call us at (724)695-9000 or email us at Sales@americanrobot.com

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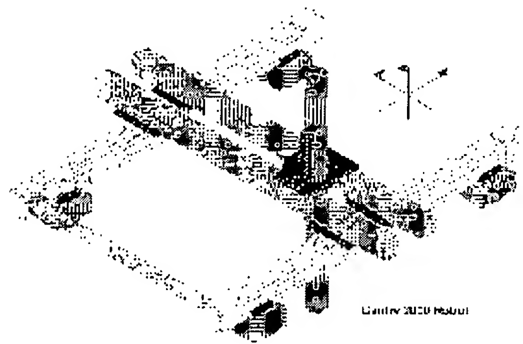
AMERICAN ROBOT ™

Gantry Robots

By American Robot



The Gantry 3000 robot is a modular gantry style robot with three to six axes of motion. It has payloads of up to 300 pounds, maximum velocity of 60"/second, and maximum acceleration of 386 "/sec^2.

Prices Start at $75,000 for a three axis unit

The following images are also available :

- **Automotive Adhesive Dispensing**
- **Waterjet Cutting Automotive Headliner**
- **Outline Drawing of Modular Style Gantry**

 For information about our Gantry robots or other products, call us at (724)695-9000 or email us at Sales@americanrobot.com

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Other Industrial Robot Companies

- » Adept Technology
- » American Robot
- » C&D Robotics
- » CRS Robotics
- » Fanuc Robotics
- » Kawasaki Robotics
- » Motoman
- » Staubli

Fanuc Robotics

Company: Fanuc Robotics North America Inc.
Corporate Headquarters:
3900 West Hamlin Rd.
Rochester Hills, MI 48309
T: (248) 377-7000
www.fanucrobotics.com
Industry sector: Industrial robots for automotive and other industrial markets
Founded: 1982 (GMFanuc prior)
Ownership: Wholly owned subsidiary of Fanuc Ltd.

Fanuc Ltd. began manufacturing robots in Japan back in the mid 1970's. The company joined with General Motors in the early 1980's to collaborate on making robot controllers. The joint venture, known as GMFanuc, was dissolved in 1992 as Fanuc bought out GM to form Fanuc Robotics North America.

Today, Fanuc Robotics Inc. is North America's top robot company in terms of shipment volume, as Fanuc Ltd. is number one in the world. Fanuc is one of the top providers of robots to the automotive industry, particularly for welding applications. In addition, Fanuc dominates the machine loading market, and produces software, controls and vision products that aid in the development of state-of-the-art robotic systems used in the automotive, plastics, metals, food, beverage, pharmaceutical, drug discovery, clinical labs, medical devices and electronics industries.

In 2000, Fanuc Robotics earned about US$450M in revenues.

Other Electronic Manufacturing Solutions Providers

- » Adept Technology
- » Applied Materials
- » Axcelis Technologies
- » FSI International
- » Lam Research
- » PRI Automation

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Brooks Automation

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15 & 16 Elizabeth Drive
Chelmsford, MA U.S.A.
T: 978-262-2400
F: 978-262-2500
www.brooks.com

Industry sector: semiconductor manufacturing equipment
Founded: 1978
Ownership: Publicly traded on the Nasdaq (BRKS)
Notable: Frog-leg mechanism

Brooks Automation

Brooks Automation, founded in 1978, develops and markets integrated automation solutions for the electronic manufacturing industry, including semiconductor, data storage and flat panel display manufacturing industries. Its products range from vacuum and atmospheric robots, cluster tool platforms and modules, ultra-clean mini-environments for isolating processing equipment and wafers - to factory and tool automation software and integration services.

A signature component of Brooks' technology is a three degree of freedom parallel manipulator design, based on a configuration they refer to as *frog-leg* (see for example US Patent 5899658). This is essentially a parallelogram mechanism (sometimes with dual parallelograms) with a z-axis added. A number of Brooks' robots, including the AX600, the Magnatran series are based on this design.

The following table provides a snapshot of Brooks' financial performance over the last few years.

	1996	1997	1998	1999	2000
Revenues	US$126.2M	US$126.6M	US$117.3M	US$115.0M	US$321.0M
Net Earnings	US$7.2M	-US$3.6M	-US$23.3M	-US$9.8M	US$12.8M

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